DRAFT COMPATIBILITY DETERMINATION

Use: Rocket & Payload Impact and Recovery

Refuge Name: Yukon Flats National Wildlife Refuge, Fairbanks, Alaska

Establishing and Acquisition Authority

In 1978, President Jimmy Carter established the 10.6 million-acre Yukon Flats National Wildlife Monument with Presidential Proclamation 4627. The monument was established from lands in the public domain. In 1980, the Alaska National Interest Lands Conservation Act (ANILCA) (§ 302) adjusted the boundary to 8.6 million acres, and established the Yukon Flats National Wildlife Refuge (Refuge) as part of the National Wildlife Refuge System.

Refuge Purpose(s)

ANILCA sets out the primary purposes for each refuge in Alaska. The purposes of the Refuge are described in Section 302(9) (B). The ANILCA purposes for the Refuge are as follows:

- to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, canvasbacks and other migratory birds, Dall sheep, bears, moose, wolves, wolverines and other furbearers, caribou (including participation in coordinated ecological studies and management of the Porcupine and Fortymile caribou herds) and salmon
- to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats
- to provide, in a manner consistent with the purposes set forth above, the opportunity for continued subsistence uses by local residents
- to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth above, water quality and necessary water quantity within the Refuge.

[Supplemental Purposes of the Beaver Creek Wild River and the recommended Lower Sheenjek Wild River] The River Management Plan for Beaver Creek National Wild River, dated December, 1983, states the river will be managed for the following long-term objectives. These are the outstandingly remarkable values and conditions to be protected and enhanced:

- preserve the river and its immediate environment in its natural, primitive condition;
- preserve the free-flowing condition of the river;
- protect water quality and quantity;
- provide high quality primitive recreational opportunities for present and future generations;

- provide a variety of opportunities for interpretive, scientific, educational and wildlands oriented uses;
- assure preservation and interpretation of historic and archeological values; and
- maintain and improve fish and wildlife habitat.

The Final Wild and Scenic River Study/EIS for the Lower Sheenjek, dated September 1999, found the river to be suitable and thus recommended to congress that it be designated part of the National Wild and Scenic Rivers System. Congress has not acted on this recommendation. In the meantime, management of the river should preserve the free-flowing condition of the river, and protect the outstandingly remarkable cultural (subsistence), wildlife, scenic and recreational values associated with the Lower Sheenjek, its water quality, and the adjacent lands.

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System is "to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-668ee]).

This compatibility determination reevaluates the use of federal lands within the Refuge as a program component of Poker Flat Research Range (PFRR) that supports research programs from across the country in the study of northern atmospheric phenomenon and climate change. Since 1983, the Refuge has issued Special Use Permits to PFRR authorizing the deposition and removal of rocket parts from Refuge lands. In 2005, the Refuge found these activities compatible with Refuge purposes and authorized PFRR to operate on Federal lands classified as minimally managed. Minimally managed lands are managed to maintain natural environmental conditions with very little evidence of human-caused change and to minimize disturbance to habtats and resources. Ground-disturbing activities are to be avoided whenever possible. It is the intention of the Refuge to ensure that proposed actions by PFRR are compatible with Refuge purposes.

Description of Use(s)

The (PFRR), University of Alaska- Fairbanks (UAF) in cooperation with the National Aeronautics and Space Administration (NASA), Goddard Space Flight Center have been conducting auroral and middle to upper atmospheric research via a sounding rockets program since the late 1960's. The Refuge provides an impact zone for research rockets and payloads. This research requires associated landings of helicopters to retrieve scientific payloads and rocket debris and has been under granted permit since 1983.

From one to eight sounding rockets are launched from the PFRR each winter. The range is located approximately fifty miles south of the Refuge, and about thirty miles

north of Fairbanks, Alaska. (See attached map.) The sounding rockets are single, two, three or four-stage solid fuel rockets. The rockets carry instrumented payloads into the earth's upper atmosphere to make direct measurements of the aurora borealis, ozone, solar protons, electric and magnetic fields, ultraviolet and other atmospheric phenomena unique to these high latitudes.

The first stage of the rocket propels it to about 20,000 feet, separates from the remaining stages and payload, and falls back to earth about two miles from the launch site at PFRR. The second stage and payload follow the flight trajectory to typical altitudes of 50 to 300 miles and impact 50 to 225 miles from the launch site. On the occasion when a three-stage rocket is utilized, both the rocket and payload over fly Alaska and land in international waters to the north.

It is the second stages and payloads that occasionally impact the Refuge. The Refuge is but one of several federal, state and private land managers that authorize the use of a combined twenty-five million acres of land for rocket and payload impact and recovery. The dimensions of the empty rocket and payload are approximately fifteen to twenty feet long, thirty inches in diameter and weigh a few hundred pounds. Most payloads launched on sounding rockets from PFRR are recovery payloads that contain locator beacons and descend slowly to earth by an orange and white parachute. They are tracked via radar, and recovered with a helicopter. When they are recovered, any disturbance to the landscape is repaired as much as feasible. All rockets launched from PFRR are unguided after launch. The PFRR managers use a risk assessment prepared by NASA that takes into account wind speed, direction of flight and type of rocket to determine launch elevation and flight azimuth, and impact point to reduce risk to life and property to an absolute minimum. For a given year, operations managers provide a detailed list of potential launch vehicle, launch windows, and potential impact zones for each launch (see attached map).

Since 2011 PFRR has implemented a launch vehicle and payload recovery plan whereby all launch-related hardware that can be effectively located and identified on downrange lands will be removed when deemed practicable by the landowner, UAF, and NASA. This plan pertains to future launches and to hardware remaining on downrange lands from previous launches. The Plan includes a rewards program to stimulate reporting of rocket debris by the general public. Plan details can be found in the 2013 Final Environmental Impact Statement-Sounding Rockets Program at Poker Flat Research Range, Volume II, appendix E.

Any deviation from this description will require a separate compatibility determination.

Availability of Refuge Resources

Adequate Refuge personnel and base operational funds are available to manage research activities at existing (approximately two requests to retrieve components are made annually) and projected levels. Administrative staff time (not more than five days) primarily involves phone conversations, written correspondence, proposal review, permit issuance and personal interaction with researchers. Field work associated with administering the program primarily involves monitoring researchers' compliance with the terms of the permit.

Anticipated Impacts of the Use(s)

Factors such as impact area(s), number of rockets or payloads, number of aircraft and anticipated amount of aircraft use will determine the extent of impacts on the Refuge. Past impacts from this use have resulted in minor to negligible damage to vegetation, which is repaired as much as practical, and helicopter use to retrieve rocket payloads and debris, and perform site remediation.

At current levels, rocket and payload impact and recovery and associated activities should not have significant impacts on the wildlife resources, other Refuge resources (e.g., water quality, soil, and vegetation), and other Refuge users, especially subsistence users, due to the limited scope and complete administrative oversight of this research. Winter conditions (frozen soil) limit impact and landing damage.

Public Review and Comment

The Refuge considers the proposed use to be a minor use with history of minimal impact. Public involvement for this document will include a public notice on the Yukon Flats NWR website and Facebook and a 14 day public comment period beginning October 21, 2014, ending November 4, 2014. This draft compatibility determination is available for review on the Yukon Flats National Wildlife Refuge Website at:
http://www.fws.gov/refuge/yukon_flats/ and on Facebook at
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge?ref=hl

Determination

_____Use is Not Compatible

__X__ Use is Compatible

Stipulations Necessary to Ensure Compatibility:

Refuge staff will monitor all research being conducted on the Refuge. Findings from these monitoring efforts will be used to determine what additional management actions, if any, are needed to ensure that research activities remain compatible with Refuge purposes. Monitoring of all authorized research activities will be continued to ensure compliance with specific terms and conditions tailored for each research permit as well as with the following general conditions that are incorporated into all research permits to minimize impacts on Refuge lands and resources.

- *Failure to abide by any part of this special use permit; violation of any Refuge related provision in Titles 43 (Part 36) or 50 Code of Federal Regulations (sub-chapters B and C); or violation of any pertinent state regulation (e.g., fish or game) will, with due process, be considered grounds for immediate revocation of this permit and could result in denial of future permit requests for lands administered by the U.S. Fish and Wildlife Service. This provision applies to all persons working under the authority of this permit. Appeals of decisions relative to permits are handled in accordance with 50 Code of Federal Regulations 36.41.*

- *The permittee is responsible for ensuring that all employees, party members, aircraft pilots and other persons working for the permittee and conducting activities allowed by this permit are familiar with and adhere to the conditions of this permit.*

- *Any problems with wildlife and/or animals taken in defense of life or property must be reported immediately to the Refuge Manager and Alaska Department of Fish and Game, and be salvaged in accordance with state regulations.*

- *This permit does not grant the permittee and his/her clients' exclusive use of the site(s) or lands covered by the permit.*

- *This permit may be canceled or revised at any time by the Refuge Manager due*

to high fire danger, flooding, unusual resource problems, or other significant problems or emergencies.

- *The permittee or his/her designee shall notify the Refuge Manager during Refuge working hours in person or by telephone before beginning and upon completing activities allowed by this permit.*

- *Prior to beginning activities allowed by this permit, the permittee shall provide the Refuge Manager with: (1) the name and method of contact for the field party chief/supervisor; (2) the aircraft and other vehicle types to be used, including identification information; (3) names of assistants and helpers; and (4) any changes to information provided in the original permit application.*

- *In accordance with the Archaeological Resources Protection Act (16 U.S.C. 470aa), the removal, excavation, disturbance, collection, or purchase of historical, recent, ethnological, or archaeological specimens or artifacts is prohibited.*

- *The use of helicopters is authorized provided that:*

    (a) Landing is prohibited except for the direct support of the activity covered by this permit and emergencies. No recreational use of helicopters is permitted.
    (b) Clearing of vegetation for landing/takeoff is prohibited. Incidental hand removal of rocks and other minor obstructions may be permitted.
    (c) Activites are restricted to day use only. No overnight stays are aniticipated.
    (d) Personnel transported are restricted to only those necessary to conduct the debris recovery. Recreational use is not permitted.
    (e) Low leverl slinging of gear from site to site is prohibited.

- *The use of off-road vehicles (except snow machines) is prohibited.*

- *The operation of aircraft at altitudes and in flight paths resulting in the herding, harassment, hazing, or driving of wildlife is prohibited. It is recommended that all aircraft maintain a minimum altitude of 2000 feet above ground level, except during take-off and landing, and when safety considerations require a lower altitude.*

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- *Fuel caches are allowed only in designated areas, must be identified on a US Geological Survey map (or map photocopy), and submitted in writing for approval by the Refuge Manager before they are established. Storage will meet standards of USFWS, Alaska Region, Fuel Storage Policy.*

- *Any action by a permittee or the permittee's employees that unduly interferes*

with or harasses Refuge visitors or impedes access to any site is strictly prohibited. Examples of prohibited acts include, but are not limited to: 1) parking aircraft or placing other objects (rocks, tents, etc.) on any area so as to restrict use by other aircraft; 2) otherwise intentionally interfering in the activity of other Refuge users; and 3) engaging in activity that is contrary to state and federal laws.

- *The permit is for Refuge lands only. This permit does not authorize use of private lands such as land owned by ANCSA Native corporations, individuals or the State of Alaska.*

- *The permittee will take no action that interferes with subsistence activities of rural users or restricts the reasonable access of subsistence users to Refuge lands. This may include, but is not limited to, disturbance of wildlife and their movements near subsistence hunters, and damage to cabins, trails, traditional campsites or caches used by subsistence users.*

- *All rocket launches will be well publicized in advance to forewarn travelers and residents of the area involved. A minimum of two weeks notice of rocket launch dates and impact zones will be provided in writing to the Refuge Manager.*

- *The permittee will insure that a transponder or other radio location aid is incorporated with each payload to facilitate tracking and recovery after launch.*

- *The permittee will maintain a viable rocket component recovery program to track, locate, and remove rocket debris at least once every two years. All determinations to remove debris will be made by the Refuge Manager. The Refuge Manager will be informed of locations (GPS coordinates in decimal degrees) of impact sites, un-recovered rockets and/or payloads, schedule for removal, actual activities to locate and remove rocket debris(see special condition #19), and any potential hazards that may thereby be created. This information should be a 1-2 page summary with map submitted within 30-days of the permit expiration.*

- *An annual trip report of activities on the Refuge shall be provided to the Refuge Manager within 30-days of the permit expiration (normally 1-2 pages). In addition to potential impact sites within the Refuge, an annual report must include a detailed summary of surveillance flights to locate and recover payload debris. Specific information of surveillance flights must include:*

  (a) type of aircraft used (helicopter or fixed-wing),
  (b) aircraft model,
  (c) operator company or ownership,
  (d) Special Use Permit number of operator,
  (e) date and time of surveillance flights,
  (f) number of flight hours,
  (g) map showing flight lines (for example, GPS track log),
  (h) landing locations with GPS coordinates in decimal degrees,
  (i) and date and time of each landing.

- *The Fish and Wildlife Service will not be liable for any act or omission of the permittee (or its employees, hereinafter referred to jointly as "permittee") in operation of permittee's rockets during all phases of operation from launch through recovery. The permittee agrees to hold harmless the Fish and Wildlife Service against any and all claims for loss or liability by any party arising out of launch, impact, and recovery of permittee's rockets, however caused.*

- *The permittee will be responsible for reporting any fires arising from these activities and will immediately notify the Alaska Fire Service and the Fish and Wildlife Service.*

- *Rocket or debris impacts within the Refuge are prohibited from 1 May through 30 September to avoid periods of high public use. However, exceptions to this prohibition may be authorized for specific time periods and areas. Requests for impact use during this period must be received by the Refuge Manager forty-five days before intended use. (A launch schedule is not considered a request.) Exception requests must include a complete project description, a statement affirming that the proposed dates are essential, the alternatives considered an analysis of the increased risk incurred and a justification for this risk.*

- *Peregrine falcons (Falco peregrinus anatum) and other raptors may have active nest sites on cliffs and bluff faces within the Refuge. Helicopter activity is prohibited within one-half mile of these active raptor nest sites during the period 1 May through 15 August.*

Justification

It is the policy of the Service (4 RM 6.1) to encourage and support research and management studies in order to provide scientific data upon which to base decisions regarding management of units of the Refuge System. The Service may permit the use of a refuge for investigatory scientific purposes when such use is compatible with the objectives for which the refuge is managed. Rocket deposition and removal has been an ongoing activity on the Refuge, and past experiences over the long-term have shown that minimal impacts on Refuge resources have occurred. Stipulations in permits issued to PFRR since 2009 have become more restrictive and require a viable recovery program to ensure continued minimal impact to Refuge resources. The Service supports research conducted by the PFRR because it contributes to the greater understanding of the natural world, including global climate change. As a science based agency, the Service encourages scientific research that benefits the American public and does not detract from the purposes for which the Refuge was established.

Mandatory 10-Year Re-Evaluation Date (provide month and year for allowed uses only): November 4, 2024

Mandatory 15-Year Re-Evaluation Date (for priority public uses):

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Memorandum
_____ Categorical Exclusions and Environmental Action Memorandum
_____ Environmental Assessment and Finding of No Significant Impact
__X__ Environmental Impact Statement and Record of Decision

Supporting Documents

- Final Environmental Impact Statement, NASA's Sounding Rockets Program at the Poker Flat Research Range, July 2013.
- Compatibility Determination and ANILCA Section 810 Evaluations, Atmospheric Rocket Research, Yukon Flats National Wildlife Refuge, 10 January 2005.
- Compatibility Determination, Uses (includes research) allowed by the 1987 Yukon Flats National Wildlife Refuge Comprehensive Conservation Plan, 19 July 1994.
- Final Yukon Flats National Wildlife Refuge Comprehensive Conservation Plan, Environmental Impact Statement and Wilderness Review, Record of Decision, 29 December 1987.
- Finding of Appropriateness of Refuge Use – June 2014

Refuge Determination

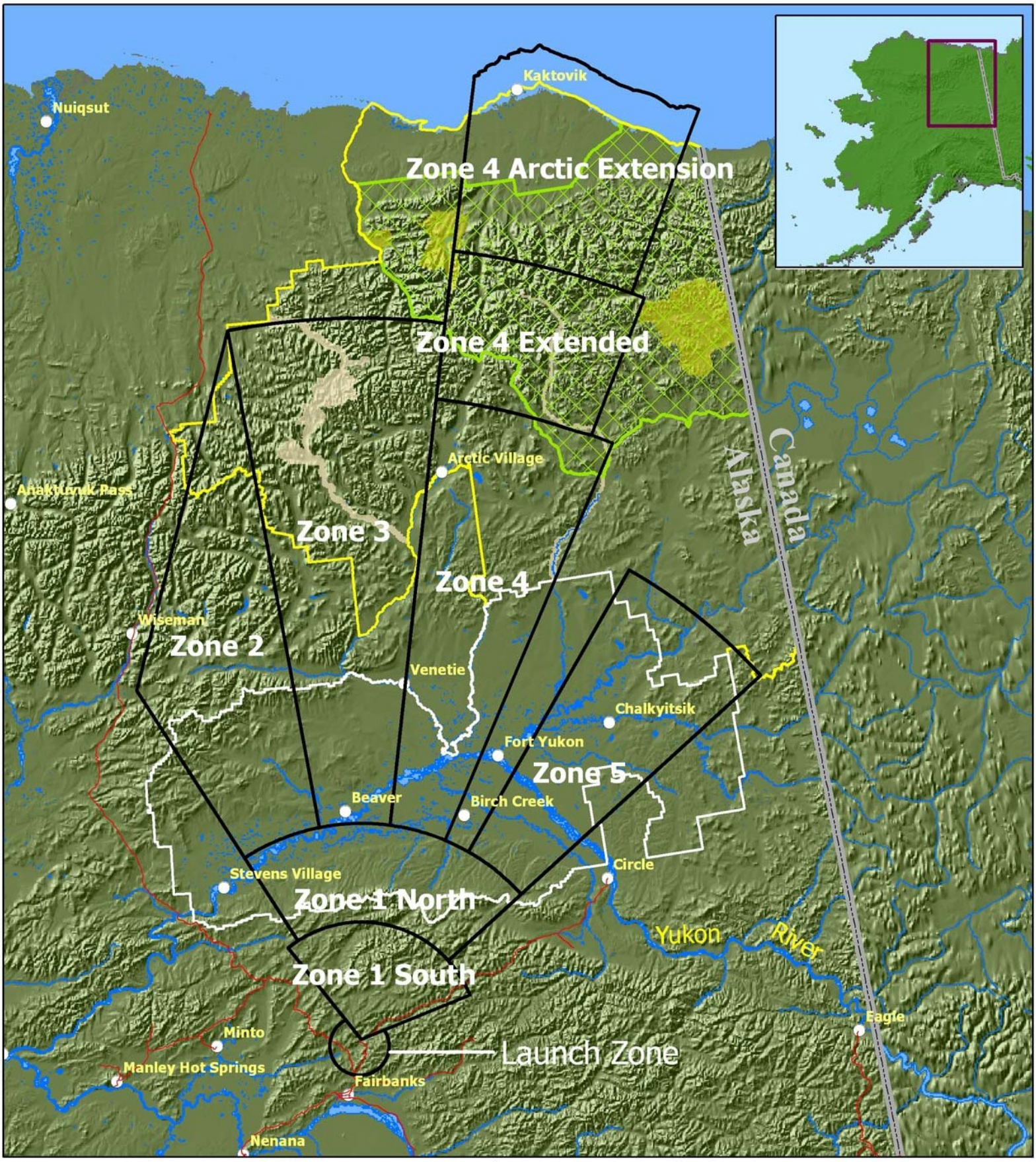
Prepared by: _____
(Signature) (Date)

Refuge Manager /
Project Leader Approval: _____
(Signature) (Date)

Concurrence

Refuge Supervisor: _____
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: _____
(Signature) (Date)



Poker Flats Research Range Flight Zones

Arctic National Wildlife Refuge
U.S. Fish & Wildlife Service
Projections: Alaska Albers
Datum: NAD83
1 December 2004

0 15 30 60 90 120 Miles

0 25 50 100 150 200 KM

1:3,000,000

Arctic National Wildlife Refuge
Arctic Refuge Wilderness
Yukon Flats National Wildlife Refuge
Wild and Scenic Rivers
Research Natural Areas
Highways